

Charlotte Amateur Astronomers Club www.charlotteastronomers.org

CAAC March 2024 Meeting

Next Meeting:	Friday March	15th,
2024		

Time: 7pm ET

Place: Myers Park Baptist Church Education Building – Shalom Hall (Basement) Or Zoom Virtual Meeting Address: 1900 Queens Road Charlotte, NC 28207 Or Zoom web conference link (See newsletter info below)

How to Catch a Spider: Studying Binary Interactions Using NASA's TESS Spacecraft



Most stars in our Galaxy host stellar, substellar, or even planetary companions that can greatly influence later stages of their host star's evolution. Hot subdwarfs are a prime example of this effect, since they appear to be the leftover cores of red giants that were stripped of their

outer atmospheres. Many have nearby red dwarf companions, and studying their properties can shed light on whether planets can survive the red giant phase of their host stars. Recent photometric surveys conducted by ESA's Gaia spacecraft and NASA's TESS mission have provided long, mostly uninterrupted data sets of unprecedented quality for thousands of hot subdwarfs. Here I present an overview of hot subdwarf binaries and discuss our ongoing work with Gaia and TESS to discover and characterize these interesting systems.



Additionally, I discuss the serendipitous discovery of a new, nearby "spider binary" in the course of this work.

Speaker: Brad N. Barlow



Dr.Brad Barlow is an Associate Professor of Astrophysics and Director of the Culp Planetarium at High Point University. Before moving to the NC Triad, Dr. Barlow received a B.S. in physics from Mississippi State University in 2006, a Ph.D. in physics (astronomy concentration) from the University of North Carolina at Chapel Hill in 2011, and he was a postdoctoral researcher at the Pennsylvania State University from 2011-2013. His research primarily focuses on pulsating stars, late stellar evolution, and binary star systems. While at UNC-Chapel Hill he helped develop software for the Goodman spectrograph on the 4.1-m SOAR telescope on Cerro Pachon in Chile. Originally from Biloxi, Mississippi, Brad did his undergraduate studies at Mississippi State University. His other interests include playing the piano, writing music, cycling, and public outreach.

CAAC Virtual Meeting Login Instructions

- 1. If you have not used Zoom before, go to Zoom.com and download the Zoom program onto your computer.
- 2. To Log In:

Click on the meeting link below:

https://us06web.zoom.us/j/82489334922?pwd=dWRsdDFkMjJOWFVNUFIIN1IFL 1NoQT09

If needed Meeting ID: **824 8933 4922** Passcode: **893125**

This manual "log in" rather than invitation to everyone prevents all the emails showing up on the invite. This is a security issue for your privacy.

- 3. When on the Zoom screen to prevent chaos and overloading bandwidth:
 - a. Mute your microphone-icon lower left of screen
 - b. Mute Video icon on the lower left of screen.
 - c. You will be able to see and hear leaders of the meeting when they are speaking
- 4. If you wish to ask questions of the speaker after the main presentation:
 - a. Submit on the chat feature which is at the bottom of the screen. You will then type out your question and hit enter.
- 5. Excellent Zoom tutorials are available on You Tube:
 - a. <u>https://www.youtube.com/user/ZoomMeetings</u>

From the President:

Greetings Friends,

Southern Star is just around the corner, the registration deadline is fast approaching. If you haven't already sent in your registration form...now is the time to do so. In addition to an optional hike over to Crabtree Falls set for Friday afternoon, a planetarium show at the Arthur Planetarium is scheduled for Saturday afternoon during Free Time. We have 40 pre-purchased tickets to the planetarium show, so when they are gone these is no guarantee that a seat will be available. Our 4 outstanding speakers are all from North Carolina and they will be the highlight of the event. Go to our website, https://charlotteastronomers.org/southern-star/ and click on the registration tab.

March/April also marks the start of "Galaxy Season". This is the time of year when large clusters of galaxies in Leo, Virgo and others in nearby constellations are visible almost all night. If you have an astrophotography interest, two new imaging telescopes are available for members that have been trained to use them. These two new 12.5" Plane Wave CDK scopes are outfitted with one shot color cameras and both compliment the existing 10" RC imaging scope. Don't forget to see the Observatory Director to get your training scheduled.

Finally, a slate of candidates for officers of the club will be presented at the April meeting. If anyone is interested in becoming a member of the leadership team, don't hesitate to see me at the club meeting on March 15, so drop me an e-mail at jegaiser@gmail.com

Clear skies,

Jim President, CAAC

SOUTHERN STAR

Ac

May 2-5, 2024

Wildacres Retreat

- Four fabulous speakers!
- Camaraderie with your astro friends!
- · Great accommodations and food at Wildacres Retreat!
- Solar observing and night-time observing DARK skies until moonrise (3:30 AM)!
- Wine and Cheese Reception and Ice Cream Social!
- Nature hike and planetarium show (optional)
- Door Prizes!
- Swap tables! Trade or sell your old stuff Trade or buy some new toys!
- Three nights: Adult 18+: \$310.00 (double occupancy) Child 6-12: \$135.00

Child 3-5: \$100.00 Day Attendee: \$80.00 Adult single occupancy: \$400

Registration opens on February 12, 2024

Check our web site for registration details charlotteastronomers.org/southern-star/



Dr. Barbara Becker University of California at Irvine - Retired *Johannes Kepler: Why Are the Heavens Such and Not Otherwise? *Dispelling the Myth of the "Able Assistant": Margaret Huggins's Contributions to the Rise of the New Astronomy

Dr. Judy Beck University of North Carolina - Asheville *Gravity's Greatest Hits *Eclipses



Dr. Britt Lundgren University of North Carolina - Asheville *Time Domain and Multi-Messenger Astronomy *Satellite Constellations



Dr. Yashashree Jadhav Elon University *Monsters on the Move: A Search for Gravitationally Recoiling Supermassive Holes *A Brief History of Ancient Asian Astronomy

https://charlotteastronomers.org/southern-star/







Secretary's Report:

1. Register for 2024 Southern Star Conference!

May 2-5 at Wildacres Retreat. We have four fabulous speakers lined up. Registration opens Monday, February 12. Please find event information and online registration at the CAAC website, <u>https://charlotteastronomers.org/southern-star/</u>

- 2. The 2024 CAAC annual membership began in October:
 - Annual individual/family membership, which includes access to the CAAC dark sky observatory (GHRO) - \$60.00
 - Dues are collected at the October meeting and are pro-rated for members joining in January or later.
 - Students up to 18 years old \$15.00 per year.
 - Private Observing Pads additional \$25.00 per year.
 Optional fee for members with private concrete observing pads at the club's dark sky location. Contact the Observatory Director for additional information.

Membership Applications are available through the CAAC Treasurer at monthly meetings. Click <u>https://charlotte-amateur-astronomers-club-2.square.site/</u> to navigate to the CAAC online store. Then select "CAAC Membership" to add it to your cart.

- 3. Our gratitude to new joining members and to our renewing members. Your participation is greatly appreciated.
- 4. If you are a former CAAC member and have not been keeping up with your membership dues, firstly please come back! We'd love to reconnect you with the love of astronomy through our club, use of GHRO observatory, and the camaraderie of our members.

Please also remember to return your badges on the table near the exit at the end of the meeting before you leave! Doing this will significantly reduce the chances of badges getting lost and reduce the amount of time (and cost) of having to re-create your name tag if it is lost. Thank you!

5. Register with the Night Sky Network! It is imperative that all members of the CAAC join the Night Sky Network (NSN). Many of the club's outreach activities are managed by the NSN, as well as club communications (newsletters, event notifications, general email). The NSN is a wonderful tool specifically designed for amateur astronomy clubs like ours. Membership allows you to contact other members via email, and receive last minute updates for outreach events via text message:

http://nightsky.jpl.nasa.gov/club-apply.cfm?Club_ID=1468&ApplicantType=Member Pre-Monthly

- 6. Are you looking for ways to participate in the club? We would appreciate volunteers for the following standing committees to better serve our members:
 - Room Set Up
 - Refreshments
 - Audio/Video
 - Web Master/ Social Media. Please be on the lookout in the next couple of weeks for emails with more details and how to participate. Please contact the CAAC Officers and let us know which committee interests you. Thank you for your consideration.

- 7. The club is adding a new CAAC Astronomy Equipment Sales page to the newsletter. Please check out the offerings at the end of the newsletter.
- 8. Sign up for CAAC Slack / chat!

Chat with fellow astronomy and astrophotography enthusiasts on our discussion group. This is a free service, we are using the basic plan. See who's going to GHRO, ask questions, or just be sociable. You can access via webpage or native applications on all major platforms and mobile phones. Sign up, introduce yourself, talk to your peers, tell your stories, ask your questions, and share your wisdom!

How do I sign up?

- Visit this link: <u>http://slack.south40astro.com</u> or email <u>caac-slack@jamieandamy.com</u>

If you run into issues signing up, email Jamie at <u>caac-slack@jamieandamy.com</u> and he will help you get on the team.

9. Become a NASA Partner Eclipse Ambassador

In April 2024, a solar eclipse will be cris-crossing the US. In an exciting new NASA partnership, undergraduate students and eclipse enthusiasts will partner to engage their local communities in advance of the eclipses to enjoy the awe and wonder of this unique alignment. Eclipse Ambassadors will bring outreach programs to underserved audiences in local libraries, colleges, schools, and other community organizations. Training, partnerships, and resources are provided, and all engagement can be done before the eclipses - there's no commitment when the shadows arrive. Undergraduates will also receive a stipend, plus opportunities to further their involvement in NASA programs.

Apply today! <u>www.eclipseambassadors.org</u> Find someone near you on our <u>Eclipse Ambassador Map</u>

We make it easy to share about the program: <u>Share a Facebook Post</u> or share <u>NASA STEM's FB Post</u> <u>Tweet about it!</u> <u>Share it with colleagues on LinkedIn</u>

10. The CAAC website, <u>https://charlotteastronomers.org/</u> has been updated to provide better service to our members with easier navigation, up to date announcements and postings, and accessible communication. Please explore and enjoy your new CAAC website.

Best,

My Do CAAC Secretary

CAAC Treasurer's Report as of 2/29/2024

Operating Fund

Purpose: Enable the CAAC to pursue our non-profit goals, maintain our facilities, and run our programs. *Funds are acquired through ongoing receipts of dues, fees, and annual Southern Star income (or expense).

*Funds are expended to meet operating obligations of the club.

1	Operating Fund Balance: 01/31/2024	\$9,168.04
2	Income:	
	Dues and Fees	\$590.00
	Hat Sale	\$20.00
	Donations	\$500.00
	Southern Star Deposit	\$400.00
3	Expenses:	
	Monthly meeting	\$286.00
	Eclipse Glasses	\$424.69
	GHRO Utilities (alarm, elec, internet)	\$230.90
	Service fee to accept credit cards	\$31.42
4	Operating Fund Balance: 02/29/2024	\$9,705.03

Non-Operating Funds Purpose: Administer gifts and donations for designated use.					
1	Non-Operating Fund Balance: 01/31/2024				
	Scholarship Fund	\$6,706.87			
	CAAC Self Insurance Fund	\$20,000.00			
	Contingency Fund	\$7,427.60			
2	Income:				
	Interest	\$0.27			
3	Expenses or Transfers:				
		\$0.00			
4	Non-Operating Funds Balance: 02/29/2024				
	Scholarship Fund	\$6,706.87			
	CAAC Self Insurance Fund	\$20,000.00			
	Contingency Fund	\$7,427.87			

Scott Goforth CAAC Treasurer

News from GHRO

- 1. The next Star Party is Saturday, April 6th beginning at dusk.
- 2. Telescope training for new members (and those wishing to get a review) will be held on Saturday, March 16th, beginning at 6:00 PM. This training is required for all new members who wish to use the facilities at GHRO. The training will take place even if it is cloudy, it will be canceled only if it is actively raining or snowing. If it's clear, you can practice your newfound skills immediately after the training. To sign up please contact Rick Bassham.
- 3. We have a Scout Troop scheduled to visit GHRO on Saturday, April 13th for an overnight stay. Anyone interested in volunteering to run telescopes for the evening, please reach out to Jim Gaiser.
- 4. When observing at GHRO please ensure you minimize the amount of light you produce. Especially for imagers, please take care to hide lights from your equipment and computers. Plastic bins are available for use to put your laptop in.
- 5. Please follow the posted startup and shutdown procedures for any club owned scopes. This helps other members when they go to use our equipment.
- 6. Don't forget that the current sky conditions and weather and the Clear Sky Clock is found at the bottom of our homepage... <u>https://charlotteastronomers.org/</u>
- 7. A new state of the art imaging observatory has been constructed and contains a Planewave 12.5" CDK telescope on a Planewave L-350 mount. This roll-off-roof facility is available for all members of the club who get training, and it is operated from inside the Outreach Center. The telescope now has first light. Please contact Rick Bassham at <u>ghro@charlotteastronomers.org</u> to learn how to use it. As a primer, if you are new to astrophotography, check out the <u>NINA tutorial by Everyday Astro on YouTube</u>. A special thank you to Dr. Jim Hermann for his generous donations.
- 8. Anyone interested in the "Sponsor a Telescope" program, please reach out. My vision on this is to pair up CAAC members who want to learn more about a particular club owned telescope and/or help pass on the knowledge and history of our club scopes. There would be no monetary commitment involved, only some time. Ideally, we would have two members sponsor each telescope. Sponsors would be responsible for checking their telescope once a quarter and working with the observatory director to address any required maintenance or repairs needed. You would also be expected to attend a new-member training event once a quarter to help pass on your knowledge of the history and operation of the scope. As our club grows, maintenance and knowledge transfers become much more difficult to be done by just one person. If you are interested, please reach out to Rick Bassham (ghro@charlotteastronomers.org).
- 9. Anyone interested in helping out with grounds maintenance, please contact Rick Bassham. It currently takes about 5 hours for one person to mow and trim the full grounds, and any help would be appreciated. Special thanks to Dale Poole for doing a lot of mowing at GHRO.

Month	New Moon Date	Star Party Date	Moon Illumination	Moon Rise	Training Date	Training Start Time (PM)
January	11	13	7% waxing	9:28:00 AM	20	4:30:00 PM
February	9	10	1% waxing	7:58:00 AM	17	5:00:00 PM
March	10	9	1% waning	6:25:00 AM	16	6:00:00 PM
April	8	6	6% waning	5:52:00 AM	13	6:00:00 PM
May	7	4	16% waning	4:21:00 AM	11	6:30:00 PM
June	6	8	6% waxing	7:46:00 AM	15	6:30:00 PM
July	5	6	1% waxing	6:35:00 AM	13	6:30:00 PM
August	4	3	1% waning	5:27:00 AM	10	6:30:00 PM
September	2	7	18% waxing	11:05:00 AM	14	5:30:00 PM
October	2	5	8% waxing	9:57:00 AM	12	5:30:00 PM
November	1	2	1% waxing	8:50:00 AM	9	4:30:00 PM
November	30	30	0% new moon	6:43:00 AM		No training
December	30	28	5% waning	5:33:00 AM		No training

2024 Star Party and Training Schedule

What would you like to see at GHRO?

Please provide any suggestions on things you would like to see at GHRO! I want to make sure this facility is providing the maximum benefit to all of our members, and I can't do that without your feedback. GHRO is already a world class amateur astronomy location, but it can always be improved. You can always contact the GHRO director, Rick Bassham at <u>ghro@charlotteastronomers.org</u>.

Rick Bassham CAAC Observatory Director

GHRO Information

GHRO is located at <u>1427 Bloomwood Drive, Lancaster, SC</u>. (some GPS show city as Pageland). Gravel road leading to the observatory is located 5.22 miles east of the "522 Grill" on Taxahaw, Rd.

Facebook FAQ

<u>https://www.facebook.com/CharlotteAstronomers/</u> scroll down to NOTES, then Frequently Asked Questions page for more information about GHRO. Be sure to share your astronomy photos and observing tips.

Night Sky Network -- "Heading to GHRO"

For updates on GHRO, be sure to join the <u>https://nightsky.jpl.nasa.gov/index.cfm</u> "Heading to GHRO" message group.

As always, we care about the safety and security of all visitors to our observing facility, the GHRO. To keep us all mindful for the need to keep alert while visiting the observatory, we provide the following reminder. Please share this with your family and any visitors who may join you at the observatory. Thank you.

*** WARNING ***

This facility (GHRO) and adjoining area may contain uneven terrain, dangerous wildlife, low light conditions, and dangerous man-made obstacles.

By using this facility, users assume the risk of personal injury, and loss or damage to personal property. All persons should use extreme caution at all times.

Users of this facility agree to hold harmless the Charlotte Amateur Astronomers Club, its Directors, and its members for any and all injuries sustained while participating in club activities or using this facility.

CAAC Outreach Report February 2024

Since last meeting:

• 3/6 Matthews Glen Retirement, presentation "Saving the Dark Skies".

Scheduled:

- 3/23 UNC Charlotte, Mike Menzel, Systems Engineer for James Webb Space Telescope.
 - Public Presentation co-sponsored by CAAC and UNC Charlotte.
 - Schedule to be announced.
- 4/3 Southminister Retirement, presentation "Solar Eclipse".
- 4/13 Cornelius Park, Solar Observing and evening Star Party.
 - Will need solar and evening scopes.
- 4/15 Shepherd's Center of Charlotte, presentation "Cosmic Perspective.

On Deck

• TBD Catawba Star Party.

Ken Steiner CAAC Public Outreach Coordinator

CAAC Astronomy Ad Listings

Welcome to the CAAC classifieds. If you would like to post an ad in the newsletter, please let us know at the beginning of each month and we will list your items. Please provide a brief description and your contact information.

Item 23-001: <u>1958 Criterion Newtonian reflector</u>, 6" f/8 for sale with original mount.

- Asking \$600 with free delivery within the Charlotte area.
 - David Friday, <u>wdfriday@twc.com</u> 704-579-1778.
- Item 23-002:New SkyQuest Intelliscope XT8.List Price \$ 1,300.00.All manuals with it-including initial purchase paperwork
 - Make An Offer.
 - Contact Jim Gaiser



Item 23-003-R1:Celestron Nexstar 130SLT, Computerized telescope (Dobsonian) – NEW IN THE BOX, never unpacked. Current Amazon price is \$599. 1.25" Barlow lens included. PRICE - \$550 MAKE ME AN OFFER I CAN'T REFUSE!

- James Foreman, jforeman@charlestonmgt.com

Orion Skyquest XTg GoTo Dobsonian, 12" – XT12g – (out of production now) NEW AND NEVER USED. On this one, I assembled the base to make it easier to store and move the tube around, but the tube and its internals have never been assembled. I built a platform with casters to move the scope around, and I also purchased a 12V sealed rechargeable battery (\$20 on Amazon) to power the electronics. There is also a telephone adapter (Celestron NexYZ - \$54 on Amazon) to fit over the eyepiece outlet. Bought the scope on Amazon several years ago for \$1795. PRICE - \$1750 WOULD REALLY LIKE TO SELL – MAKE ME AN OFFER!.

- James Foreman, jforeman@charlestonmgt.com





The Night Sky in March 2024

Auriga: M36, M37, & M38



Auriga the 'Charioteer' constellation is identified with Erichthonius, a Greek king, credited for the invention of the quadriga, the four-horse chariot. Zeus honored Erichthonius for his invention by placing him in the sky. Auriga is home to 0.08 magnitude star, Capella, and three fine open star clusters, which show as glows in binoculars and small splashes of stardust in a small telescope.

M36 is the first of these three and can be found five degrees southwest of Theta Aurigae. The cluster contains some 60 member stars of magnitudes between 9 and 14 and is 4,100 light years distant. If you look carefully, you will notice that several of its brightest stars are arranged in roughly parallel rows.

M37 is nearly 4 degrees east-southeast of M36. It is an easy and rewarding object for small telescopes or binoculars, and appears as a rich, somewhat triangular grouping of closely packed together stars. Look for a bright, orange star near the center. Shift almost 2 degrees northwest of M36 and you will sweep into a big, bright showpiece of an open cluster. M37 is also known as the "Salt & Pepper Cluster" and is the brightest of these three open clusters in Auriga.

M38 is a scattered group of irregular form, composed of some 100 stars about magnitude 10 and fainter. The full diameter of the cluster is about 20 arcminutes, and is best seen at medium magnifications.

All three of these clusters were discovered by the Italian astronomer, Giovanni Battista Hodierna (1597-1660).

Auriga Constellation Map courtesy of IAU and Sky&Telescope, https://www.constellation-guide.com/constellation-map/northern-constellations/

We would like to acknowledge the content for this report was edited from information courtesy of NightSkyInfo, *Please note that NightSkyInfo has merged with Starlust.org and the original NightSkyInfo content has been migrated to the new site, Tom Urbain (Starlust.org) Acquire NightSkyInfo.com

We welcome and encourage our CAAC members to come and visit the **GHRO Observatory** to enjoy, learn, and observe these and other celestial wonders.

If you would like to download a map of each month's night sky, use this link, <u>https://www.skymaps.com/skymaps/tesmn2308.pdf</u> to download, print, and navigate the Evening Sky Map.

An ENHANCED Star Atlas – FREE!

Our CAAC member, Mark Hoecker, has used the *Mag 7 Star Atlas – Color Milky Way version* (available on the internet) and added some enhancements including:

- A star map index to quickly identify the individual star chart you are looking for.
- Blue directional arrows at the edge of each chart guiding you to the adjacent chart. Also large page numerals were added in the lower right corner, helpful when thumbing through the charts.
- Finally, he manually added common star names and a selection of deep sky object names to the star charts, helpful in finding your way around the sky.

Such enhancements are allowed under the Creative Commons License by Andrew L. Johnson, author of the original charts.

SUGGESTION: While printing at the largest paper size you have available is helpful, a great alternative if you have a "letter size" color printer with a manual auxiliary feed slot, is to print on "legal size" (8½ x 14-inch) heavy paper or even "card stock". You could also punch holes and place in a legal-size report cover available at office supply stores. You would then have a wonderful star atlas to help you through the night skies!

If you have access to a color printer that can print on 11 x 17-inch paper (or card stock), you can print a magnificent copy whose readability will rival that of very nice, commercially available atlases.

To download your *Mag-7 Star Atlas Milky Way version – ENHANCED*, go to the CAAC website and scroll down the left column to "Mag 7 Star Atlas" and follow the link. *Happy Observing!*

Endowment Corner

Gifts for the Present:

Real-estate

A gift of property can be a part of one's distribution of assets with certain tax advantages.

To make a contribution or learn more, please visit https://charlotteastronomers.org/endowment/

Ken Steiner Chair, CAAC Stewardship Foundation

CAAC CONTACTS

President Vice President Treasurer Secretary Observatory Director Public Outreach Coordinator Southern Star Jim Gaiser Benton Kesler Scott Goforth My Do Rick Bassham Ken Steiner Jim Gaiser president@charlotteastronomers.org vicepresident@charlotteastronomers.org treasurer@charlotteastronomers.org info@charlotteastronomers.org ghro@charlotteastronomers.org publicoutreach@charlotteastronomers.org southernstar@charlotteastronomers.org